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Reference: Task III Report

Subject: Lens Test Report ()

Procedure:

Seven lenses were tested in conjunction with the camera body. Each lens is equipped with Eyemo mount and provided with index and lock devices as specified by Wollensak Company. Plus X film and maximum apertures were used.

Test procedure #1 as shown in test film involved interchanging of all lenses when set to infinity position. No boresighting was done.

Test procedure #2 as shown in test film used a preselected target area where each lens was boresighted to a given object plane in that field.

Results:

Lenses of 2, 4, 6 and 12 inch focal length, appear satisfactory. Image crispness and contract appear satisfactory. The 1, 18 and 24 inch lenses were not considered satisfactory. Inspection of these lenses disclosed the following:

- a. The one inch lens had not been set at infinity position due to operator error.
- b. The 18 inch lens had been modified to an adjustable focus mount by Wollensak. The infinity position was in error by 7.2 degrees.

The 24 inch lens was similarly in error by 6.0 degrees.

Procedures:

The 1, 18, 24 inch lenses were setup and tests repeated.

Results:

The 1, 18, 24 inch lenses were considered acceptable and aligned.

Conclusions:

As may be seen in test films, at full aperture all lenses are satisfactory. Notice should be given to the fact that the roof tests for lenses was accomplished on a rather windy day, where periodic gusts were quite evident. Close inspection of these images under microscope clearly indicate blur in one dimension, not in two, the latter characteristic of improper focus. By the same token the indoor negatives with the same lenses are clearly crisp lending credence to the

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effect of wind outdoors.

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The focus ring on the 18 and 24 inch lenses leave much to be desired. Scale calibration has been found in error by as much as 100 feet in range. This potential error lies in the locking means used where the lock set screw is not dogged into position at assembly. This has been accomplished at as a temporary expedient. Future procurement of lenses should require closer examination of product after and during assembly.

25X1

The lens adapters were originally found to have variations in the adapter diameter causing some lenses to be loose in locked position. Much of these variations have been eliminated but for the fact that the 1 and 2 inch lens shells are slightly oval and provide other than the optimum slip fit desired. We contend that while the Eyemo mount is best suited for this purpose, that a better material be selected to replace the aluminum used as standard. Brass or bronze sleeves would provide a marked improvement.

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22 May, 1958

LENS TEST

1. Conditions:
- a. All lenses set to infinity position
 - b. Plus X film used (ASA 80)
 - c. Interval time - 5 seconds.
 - d. Shutter - automatic positioning

<u>Focal Length</u>	<u>F/</u>	<u>Shutter Setting</u>
1	2.4	1/300
2	2.5	1/800
4	2.5	1/800
6	2.7	1/800
12	4.5	1/400
18	5.6	1/400
24	5.6	1/250

Note: Shutter setting variation as a result of varying illumination due to haze and moving clouds.

2. Conditions:
- a. All lenses boresighted
 - b. Plus X film used (ASA 80)
 - c. Interval 5 seconds.
 - d. Shutter automatic

<u>Focal Length</u>	<u>F/</u>	<u>Shutter Setting</u>
1	2.4	1/200
2	2.5	1/1600
6	2.7	1/1600
12	4.5	1/800
18	5.6	1/400
24	5.6	1/800

Note: Target distance = 240'

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